

Work Order ID 87498

87498

Page 1

July-19-12 11:07:09 AM

Item ID: D6101-003 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Saddle Billet, 7075
 Start Date: 7/10/12 Start Qty: 24.00 *24* Cust Item ID:
 Required Date: 8/10/12 Req'd Qty: 24.00 *24* Customer:
 Reference:

Approvals: Process Plan: MLJ Date: 12/07/20 Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D6101	Rev B								
100	PURCHASING	0.00							
100									
Purchasing	Memo	0.00							
Purchasing	Issue P/O: <u>17514</u>								
	a) Description: Aluminum billet								
	b) 7.875" x 6.250" x 2.00" thick								
	c) Tolerance on all dimensions are +0.030"/-0.000"								
	d) Grain direction along 7.875" length								
	e) Material: 7075-T7351 (QQ-A-250/12)								
	f) Material certification required								
110	Receive & Inspect for Damage & Mat'l Certs	0.00							
110									
Packaging	Memo	0.00							
Packaging	Ensure material certification is attached								

CY 12/07/20 24

12/29 (90)

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div>						
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector			
Doc/Data <input type="checkbox"/>												
Equip/Tooling <input type="checkbox"/>												
Operator <input type="checkbox"/>												
Material <input type="checkbox"/>												
Setup <input type="checkbox"/>												
Other <input type="checkbox"/>												
Process <input type="checkbox"/>												
Supplier <input type="checkbox"/>												
Training <input type="checkbox"/>												
Unapproved <input type="checkbox"/>												
FAULT CATEGORY												
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge		<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other	

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July-19-12 11:07:09 AM

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC6- Inspect dimensions to drawing	0.00							
120			DAS						
QC	Memo	0.00	14						
Quality Control	Ensure Material certification comply to Dwg D6101		2-89	12/07/27		40			
130	Identify as per dwg & Stock Location: MAT42	0.00							
130			DAS						
Packaging	Memo	0.00	14						
Packaging			2-89	12/07/27		40			
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.00							
Quality Control									

12/7/31
MCJ 12/07/30

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

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QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div>						
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FAULT CATEGORY												
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Picklist Print

July-19-12 11:07:08 AM

Page 1

Work Order ID: 87498

Parent Item: D6101-003

Start Date: 7/10/12

Required Date: 8/10/12

Parent Item Name: Saddle Billet, 7075

Start Qty: 24.00

Required Qty: 24.00

Comments: IPP A: 01.05.04New IssueEC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6101-003P 7075-T7351 2X6.25X7.875		Purchased	No			110	Each	0.0000	1	24			

6/12/12 (40)

NCR: Yes / No

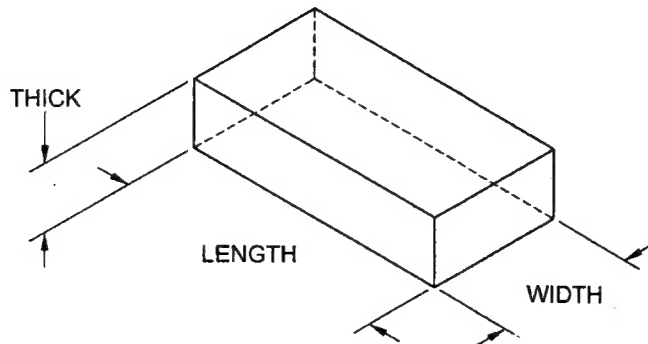
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SPECIFICATION CONTROL DRAWING



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 83498 MGS
12/07/20

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.030/-0.000), AND GRAIN DIRECTION AS SHOWN.

TOLERANCES ON ALL DIMENSIONS ARE +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

B ACCEPTABLE SPECIFICATIONS FOR 7075-T7351 ALUMINUM ARE AMS-QQ-A-250/12, QQ-A-250/12, OR ASTM B209

Part No.	Alloy	Length	Width	Thick	Grain Direction
D6101-001	7075-T7351 (QQ-A-250/12)	6.000	6.250	2.000	Along 6.000 Length
D6101-003	7075-T7351 (QQ-A-250/12)	7.875	6.250	2.000	Along 7.875 Length
D6101-005	7075-T7351 (QQ-A-250/12)	5.000	8.250	2.500	Along 5.000 Length
D6101-007	7075-T7351 (QQ-A-250/12)	7.750	8.250	2.500	Along 7.750 Length
D6101-009	7075-T7351 (QQ-A-250/12)	8.700	8.250	2.500	Along 8.700 Length
D6101-011	7075-T7351 (QQ-A-250/12)	9.700	8.250	2.500	Along 9.700 Length
D6101-013	7075-T7351 (QQ-A-250/12)	10.100	8.250	2.500	Along 10.10 Length
D6101-015	7075-T7351 (QQ-A-250/12)	9.450	6.250	2.500	Along 9.450 Length
D6101-017	7075-T7351 (QQ-A-250/12)	6.350	6.250	2.250	Along 6.350 Length

B

RELEASED
09/07/15/W

83498
12/07/20

B	ADDED D6101-015/-017, ADD ASTM B209	RF	09.04.23
A	NEW ISSUE	CP	01.03.30
REV.	DESCRIPTION	BY	DATE
DESIGN	CP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	RF	D6101	SHEET 1 OF 1
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	SADDLE BILLET, 7075	NTS
DATE	09.04.23	COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

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FAULT CATEGORY				
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other	

**Castle Metals®**

A. M. Castle & Co.

BORDEREAU DE MARCHANDISES

Page 1 of 2

No de Formulaire d'Emballage / Shipment No: 1399396

Expédié de / Ship From: A. M. Castle & Co. (Canada) Inc. MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		Vendu à / Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Expédié à / Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Livré à / Deliver To: WILL CALL-MONTREAL 835 SELKIRK AVENUE POINTE CLAIRE, QC H9R 3S2 CA	
Date d'expédition / Date Shipped 23-JUL-2012	F.O.B. ORIGIN	Modalités de transport / Freight Terms Prepaid	Transporteur / Carrier MANITOULIN		No du Bon de connaissance / BOL No 1399396-2		

Détails d'expédition / Shipment Details	Destination finale / Final Destination Branch - MON
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N° de commande / Order No 2249266	N° de ligne / Line No 2	N° d'article / Item No 752237.MO	Description 2.0000.PL.7075.T7351.ALUMINUM.USI.48.5000.144.5000 CUT 2SIDED TO 6.25 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 7.875")) X 7.875 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 7.875")) - ALUMINUM PLATE SAW SPECIFICATIONS: QQ-A-250/12	
N° de bon de commande / Purchase Order No WILL ADVISE		Nbre de pièces / Part Number YOUR ITEM NUMBER: D6101-003	Qté commandée / Ordered Qty 40.00 PCS	Qté Facturée / Invoice Qty 40.00 PCS

DAS
14
2-89**Détails / Details** ATTN MONTREAL: DO NOT SHIP - HOLD FOR RELEASE

N° de livraison / Delivery No : 117731416	Usine / Mill KAISER ALUMINUM	No de coulée / Heat Number 744564A6	Code méc / Mech Id	Pièces / PCS 40	Largeur (Pouce) / Width (IN)	Longueur (Pouce) / Length (IN)	Qté expédiée / Shipped Qty(LBS) 406.4338
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Ces marchandises/technologies sont sujettes aux règlements de l'Export Administration et du département d'état des États-Unis. Si elles ont été/sont exportées, elles doivent se conformer à ces règlements. Toute modification du contrat de transport contraire aux lois des États-Unis est interdite.
These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

Nous certifions par la présente que le matériel couvert par cette certification est conforme aux spécifications susmentionnées et aux exigences applicables pour le matériel, y compris toute spécification faisant partie de la description. Les rapports d'essai sont archivés pour fins de consultation. Toute requête concernant du matériel défectueux sera traitée et nous qu'elle ne soit faite par écrit à A. M. Castle & Co. dans les 60 jours de la livraison. Le matériel coupé sur mesure ou coupé par le client ne peut être retourné pour crédit.
We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description.

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law prohibited.
Date Printed: 02 JUL 2012 02:29:15 PM



Castle Metals

A. M. Castle & Co.

BORDEREAU DE MARCHANDISES

Page 2 of 2

Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.		
Ce matériel a été reçu et inspecté par Reviewed by Authorized Castle Metals Representative:	Date:	Name:

SHIP TO: A M CASTLE & CO 3050 SOUTH HYDRAULIC WICHITA, KS 67216
SOLD TO: AM CASTLE & CO- SOLD TO 1420 KENSINGTON RD SUITE 220 OAK BROOK, IL 60523

**KAISER
ALUMINUM**
Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4254286

CUSTOMER PO NUMBER: 142608	WORK PACKAGE:	CUSTOMER PART NUMBER: 752237	SHIP RUN/LOAD: 102241/21	GOV'T CONTRACT NUMBER:		
KAISER ORDER NO: 1127129	LINE ITEM: 2	SHIP DATE: 13-FEB-2012	ALLOY: 7075	CLAD: BARE	TEMPER: T7351	PRODUCT DESCRIPTION: Sawed Plate
WEIGHT SHIPPED: 4276 LB	QUANTITY: 3 PCS EST.	B/L NUMBER: 2035760	GAUGE: 2.0000 IN	DIAMETER/WIDTH: 48.500 IN	LENGTH: 144.500 IN	

MHU 1557443: LOT 743835A1: 1 pieces;
MHU 1560416: LOT 744549A7: 1 pieces;
MHU 1563058: LOT 744564A6: 1 pieces;

Certified Specifications

AMS 4078/RevJ
ASTM B 209/Rev10
BSS 7055/RevA
DPS 4.713/RevAH
MMS 159/RevR

AMS-QQ-A-250/12
ASTM B 594/Rev09
CMMP 025/RevU
GAMPS 9101/RevB
PS 21211/RevL

AMS-STD-2154/Rev98
BAC 5439/RevH
CSTI 006/RevD
GSS16100/RevG/Amd1

Test Code: 4297

Test Results

Lot: 743835A1 Cast 445 Drop 42 Ingot 4 Parent Lot: 572825A8 Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	73.2 : 73.2 (505 : 505)	62.9 : 63.1 (434 : 435)	12.4 : 12.5

(ASTM E1004) (EN 2004-1)		
Conductivity %IACS :	40.8 Min	40.9 Max
(MS/M) :	23.7 Min	23.7 Max

DAS
14
2-83 12/07/27

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.09	0.18	1.4	0.03	2.4	0.20	5.5	0.03	0.01	0.01	TOT 0.05



Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4254286

Lot: 744549A7 Cast 445 Drop 78 Ingot 2 Parent Lot: 744192A6 Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	73.5 : 74.0 (507 : 510)	62.3 : 62.9 (430 : 434)	12.5 : 12.8

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	40.7 Min	40.9 Max
(MS/M) :	23.6 Min	23.7 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.07	0.16	1.4	0.03	2.5	0.20	5.8	0.03	0.01	0.01	TOT 0.05

Lot: 744564A6 Cast 449 Drop 08 Ingot 3 Parent Lot: 572890A2 Melted in USA

(ASTM E8/B557)
(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	72.7 : 72.8 (501 : 502)	61.6 : 61.8 (425 : 426)	11.9 : 12.1

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	40.6 Min	40.6 Max
(MS/M) :	23.5 Min	23.5 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.10	0.23	1.5	0.05	2.5	0.20	5.7	0.02	0.01	0.01	TOT 0.06

ALLOY LIMITS

	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
7075												
MIN	0.00	0.00	1.2	0.00	2.1	0.18	5.1	0.00	0.00	0.00	EACH	0.05
MAX	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.05	TOT	0.15

Aluminum Remainder

TEST NOTES

Metal represented by this test report was 100% immersion ultrasonically tested from one side and meets the Class A and Class B requirements of all specifications referenced on this test report.

DAS
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12/07/27

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KAISER ALUMINUM

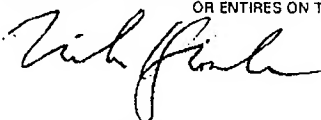
Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4254286

CERTIFICATION

KAISER ALUMINUM FABRICATED PRODUCTS, LLC (KAISER) HEREBY CERTIFIES THAT METAL SHIPPED UNDER THIS ORDER WAS MELTED IN THE UNITED STATES OF AMERICA OR A QUALIFYING COUNTRY PER DFARS 225.872-1(a), WAS MANUFACTURED IN THE UNITED STATES OF AMERICA, AND MEETS THE REQUIREMENTS OF DFARS 252.225 FOR DOMESTIC CONTENT. THIS MATERIAL HAS BEEN INSPECTED, TESTED, AND FOUND IN CONFORMANCE WITH THE REQUIREMENTS OF THE APPLICABLE SPECIFICATIONS AS INDICATED HEREIN. ALL METAL WHICH IS SOLUTION HEAT TREATED COMPLIES WITH AMS 2772. ANY WARRANTY IS LIMITED TO THAT SHOWN ON KAISER'S STANDARD GENERAL TERMS AND CONDITIONS OF SALE. TEST REPORTS SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF KAISER ALUMINUM FABRICATED PRODUCTS, LLC LABORATORY. THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTIRE ON THE CERTIFICATE MAY BE PUNISHED AS A FELONY UNDER FEDERAL LAW. ISO-9001:2000 CERTIFIED.



MIKE KLOCKE, LABORATORIES SUPERVISOR

